**PRESCRIBED LEARNING OUTCOMES** *Grade 8*

*30* SCIENCE GRADE 8

**GRADE 8**

***Processes of Science***

*It is expected that students will:*

A1 demonstrate safe procedures

A2 perform experiments using the scientific method

A3 represent and interpret information in graphic form

A4 use models to explain how systems operate

A5 demonstrate scientific literacy

A6 demonstrate ethical, responsible, cooperative behaviour

A7 describe the relationship between scientific principles and technology

A8 demonstrate competence in the use of technologies specific to investigative procedures and research

***Life Science: Cells and Systems***

*It is expected that students will:*

B1 demonstrate knowledge of the characteristics of living things

B2 relate the main features and properties of cells to their functions

B3 explain the relationship between cells, tissues, organs, and organ systems

B4 explain the functioning of the immune system, and the roles of the primary, secondary, and tertiary

defence systems

***Physical Science: Optics***

*It is expected that students will:*

C1 demonstrate knowledge of the behaviour of waves

C2 explain the properties of visible light

C3 compare visible light to other types of electromagnetic radiation

C4 explain how human vision works

***Physical Science: Fluids and Dynamics***

*It is expected that students will:*

C5 explain the concept of force

C6 describe the relationship between solids, liquids, and gases, using the kinetic molecular theory

C7 determine the density of various substances

C8 explain the relationship between pressure, temperature, area, and force in fluids

C9 recognize similarities between natural and constructed fluid systems (e.g., hydraulic, pneumatic)

***Earth and Space Science: Water Systems on Earth***

*It is expected that students will:*

D1 explain the significance of salinity and temperature in the world’s oceans

D2 describe how water and ice shape the landscape

D3 describe factors that affect productivity and species distribution in aquatic environments

**GOAL 1: Science, technology,**

**society, and the environment (STSE)**

Students will develop an understanding

of the nature of science and technology,

of the relationships between science

and technology, and of the social and

environmental contexts of science and

technology.

**GOAL 2: Skills**

Students will develop the skills required

for scientifi c and technological inquiry,

for solving problems, for communicating

scientifi c ideas and results, for working

collaboratively, and for making informed

decisions.

**GOAL 3: Knowledge**

Students will construct knowledge

and understandings of concepts in life

science, physical science, and Earth

and space science, and apply these

understandings to interpret, integrate,

and extend their knowledge.

**GOAL 4: Attitudes**

Students will be encouraged to develop

attitudes that support the responsible

acquisition and application of scientifi c

and technological knowledge to the

mutual benefi t of self, society, and the

environment

**PROCESSES OF SCIENCE**

***Grade 6***

manipulate and control a number of variables in an experiment

apply solutions to a technical problem (e.g., malfunctioning electrical circuit)

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***Grade 7***

test a hypothesis by planning and conducting an experiment that controls for two or more variables

create models that help to explain scientifi c concepts and hypotheses

**LIFE SCIENCE**

***Grade 6***

demonstrate the appropriate use of tools to examine living things that cannot be seen with the naked eye

analyse how different organisms adapt to their environments

distinguish between life forms as single or multi-celled organisms and belonging to one of fi ve kingdoms:

Plantae, Animalia, Monera, Protista, Fungi

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***Grade 7***

analyse the roles of organisms as part of interconnected food webs, populations, communities, and

ecosystems

assess survival needs and interactions between organisms and the environment

assess the requirements for sustaining healthy local ecosystems

evaluate human impacts on local ecosystems

**PHYSICAL SCIENCE**

***Grade 6***

evaluate various methods for producing small electrical charges

test a variety of electrical pathways using direct current circuits

demonstrate that electricity can be transformed into light, heat, sound, motion, and magnetic effects

differentiate between renewable and non-renewable methods of producing electrical energy

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***Grade 7***

conduct investigations into properties of matter

classify substances as elements, compounds, and mixtures

measure substances and solutions according to pH, solubility, and concentration

**EARTH AND SPACE SCIENCE**

***Grade 6***

explain obstacles unique to exploration of a specifi c extreme environment

assess technologies used for extreme environments

describe contributions of Canadians to exploration technologies

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***Grade 7***

compare the characteristics of the Earth’s core, mantle, and crust, and describe the formation of rocks

analyse the dynamics of tectonic plate movement and landmass formation

explain how the Earth’s surface changes over time